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RESEARCH REPORT

The Evolving Role of Emergency Departments in the United States

Kristy Gonzalez Morganti • Sebastian Bauhoff • Janice C. Blanchard

Mahshid Abir • Neema Iyer • Alexandria C. Smith • Joseph V. Vesely

Edward N. Okeke • Arthur L. Kellermann



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Sponsored by the Emergency Medicine Action Fund

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Preface

This project was performed to develop a more complete picture of how emergency departments (EDs) contribute to the U.S. health care system. Using a mix of quantitative and qualitative methods, it explores the evolving role that hospital EDs and the personnel who staff them play in evaluating and managing complex and high-acuity patients, serving as the major portal of entry to inpatient care, and serving as “the safety net of the safety net” for patients who are unable to get care elsewhere.

This work was sponsored by the Emergency Medicine Action Fund, a consortium of emergency medicine physician organizations sponsored by the American College of Emergency Physicians. The research was conducted by RAND Health, a division of the RAND Corporation. A profile of RAND Health, abstracts of publications, and ordering information can be found at www.rand.org/health.

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Executive Summary

Emergency departments (EDs) emerged with the rise of hospital-based medicine in the aftermath of World War II. Today, they play a pivotal role in the delivery of acute ambulatory and inpatient care. As our health care system evolves in response to economic, clinical, and political pressures, the role of EDs is evolving as well.

Because EDs charge higher prices for minor illness and injury care than other ambulatory care settings, ED care is frequently characterized as “the most expensive care there is.” But this depiction ignores the many roles that EDs fill, and the statutory obligation of hospital EDs to provide care to all in need without regard for their ability to pay. To develop a more complete picture of how EDs contribute to our modern health care system, the Emergency Medicine Action Fund asked RAND to conduct this mixed-methods study.

At the outset of our effort, we reviewed recently published literature regarding ED use and used it to craft a conceptual model that depicts the various choices ED patients and providers make over the course of an episode of care. To quantify the importance of EDs as a major portal of entry to inpatient care, we analyzed four datasets compiled and maintained by the U.S. Department of Health and Human Services. Given a growing focus at the national and state levels on preventing non-urgent patients from seeking care in EDs, we analyzed data from the Community Tracking Study, a decade-long effort that describes changing patterns of health care utilization and delivery in 60 communities nationwide. To add context to the quantitative observations derived from these analyses, we conducted three focus groups with emergency medicine and hospitalist physicians, and interviewed 16 practicing primary care physicians who work in a variety of communities.

Key findings include the following:

- Between 2003 and 2009, inpatient admissions to U.S. hospitals grew at a slower rate than the population overall. However, nearly all of the growth in admissions was due to a 17 percent increase in unscheduled inpatient admissions from EDs. This growth in ED admissions more than offset a 10 percent decrease in admissions from doctors’ offices and other outpatient settings. This pattern suggests that office-based physicians are directing to EDs some of the patients they previously admitted to the hospital.
- In addition to serving as an increasingly important portal of hospital admissions, EDs support primary care practices by performing complex diagnostic workups and handling overflow, after-hours, and weekend demand for care. Almost all of the physicians we interviewed—specialist and primary care alike—confirmed that office-based physicians increasingly rely on EDs to evaluate complex patients with potentially serious problems, rather than managing these patient themselves.
- As a result of these shifts in practice, emergency physicians are increasingly serving as the major decisionmaker for approximately half of all hospital admissions in the United States. This role has important financial implications, not only because admissions

generate the bulk of facility revenue for hospitals, but also because inpatient care accounts for 31 percent of national health care spending.

- Although the core role of EDs is to evaluate and stabilize seriously ill and injured patients, the vast majority of patients who seek care in an ED walk in the front door and leave the same way. Data from the Community Tracking Study indicate that most ambulatory patients do not use EDs for the sake of convenience. Rather, they seek care in EDs because they perceive no viable alternative exists, or because a health care provider sent them there.
- Medicare accounts for more inpatient admissions from EDs than any other payer. To gain insight into whether care coordination makes a difference in the likelihood of hospital admission from an ED, we compared ED admission rates among Medicare beneficiaries enrolled in a Medicare Choice plan versus beneficiaries enrolled in Medicare fee-for-service (FFS). We found no clear effect on inpatient admissions overall, or on a subset of admissions involving conditions that might be considered “judgment calls.”
- Irrespective of the impact of care coordination, EDs may be playing a constructive role in constraining the growth of inpatient admissions. Although the number of non-elective ED admissions has increased substantially over the past decade, inpatient admissions of ED patients with “potentially preventable admissions” (as defined by the Agency for Healthcare Research and Quality) are flat over this time interval.

Our study indicates that: (1) EDs have become an important source of admissions for American hospitals; (2) EDs are being used with increasing frequency to conduct complex diagnostic workups of patients with worrisome symptoms; (3) Despite recent efforts to strengthen primary care, the principal reason patients visit EDs for non-emergent outpatient care is lack of timely options elsewhere; and (4) EDs may be playing a constructive role in preventing some hospital admissions, particularly those involving patients with an ambulatory care sensitive condition. Policymakers, third party payers, and the public should be aware of the various ways EDs meet the health care needs of the communities they serve and support the efforts of ED providers to more effectively integrate ED operations into both inpatient and outpatient care.

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Numerous individuals and organizations provided source material or substantive assistance to this report. Our quantitative analysis used data from several sources, including the Agency for Healthcare Research and Quality, the Center for Studying Health Systems Change and the Inter-university Consortium for Political and Social Research and the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC). Several organizations allowed us to recruit from their memberships for focus groups. These include: the American College of Emergency Physicians (ACEP), the Society for Academic Emergency Medicine, The Patient Centered Primary Care Collaborative, and the Society for Hospital Medicine. Several individuals were particularly helpful to the recruiting effort: Susan Spradlin, Buck Beighley, and Peggy Brock (ACEP); Amy Gibson, Michelle Shaljian, Dr. Paul Grundy, Marci Nielsen, and Deborah Felsenthal (The Patient Centered Primary Care Collaborative), Dr. Joe Stubbs, former President of the American College of Physicians, and Dr. Todd Von Deak, Dr. Mark Williams, and Dr. Larry Wellikson (Society for Hospital Medicine). Finally, we are particularly grateful for the outstanding technical advice and analytical assistance we received from Ryan Mutter of the Agency for Healthcare Research and Quality, and the thoughtful comments and suggestions of Andrew Mulcahy and Lori Uscher-Pines of the RAND Corporation and Stephen R. Pitts of Emory University.

Abbreviations

ACEP	American College of Emergency Physicians
ACO	Accountable Care Organization
ACS	Ambulatory Care Sensitive
AHRQ	Agency for Healthcare Research and Quality
CCS	Clinical Classifications Software
CDC	Center for Disease Control and Prevention
CHIP	Children's Health Insurance Program
COPD	chronic obstructive pulmonary disease
CT	computerized tomographic
CTS	Community Tracking Study
ED	Emergency Department
EMAF	Emergency Medicine Action Fund
EMR	Electronic Medical Record
EMTALA	Emergency Medical Treatment and Labor Act
ER	Emergency Room
FFS	Fee-for-Service
GDP	Gross Domestic Product
HCUP	Healthcare Cost and Utilization Project
HMO	Health Maintenance Organization
ICD-9-CM	International Classification of Diseases, Ninth Revision, Clinical Modification
ICU	Intensive Care Unit
IT	Information Technology
NEDS	Nationwide Emergency Department Sample
NHDS	National Hospital Discharge Survey
NCHS	National Center for Health Statistics
NIS	Nationwide Inpatient Sample
PCP	Primary Care Physician
PPO	Preferred Provider Organization
PQI	Prevention Quality Indicators
SEDD	State Emergency Department Database
SID	State Inpatient Database

1. Introduction

This report examines the evolving role of hospital emergency departments (EDs) in the U.S. health care system. RAND conducted the study at the request of the Emergency Medicine Action Fund to develop a comprehensive picture of how EDs contribute to modern health care and to suggest how ED care might be more effectively, and more cost-effectively, integrated with community care.

Trends Affecting the Evolution of Hospital EDs

The hospital ED is a relatively recent phenomenon that emerged in the years following World War II (A. L. Kellermann & Martinez, 2011). Beginning in the early 1970s and accelerating through the 1980s and 1990s, ED staffing shifted from part-time coverage by community physicians, rotating house officers, or moonlighters to full-time, around-the-clock coverage by residency-trained, board-certified emergency physicians (IOM, 2007). The highly specialized knowledge and skills these doctors possess have allowed hospital EDs to dramatically expand their capability to diagnose and manage a wide range of problems, from resuscitating critically ill and injured children and adults to managing complex patients with chronic diseases such as HIV–AIDS, cancer, renal failure, and diabetes. The enhanced capability to manage complex and time-critical problems has also given ED staff more options to diagnose and manage problems without resorting to hospital admission.

Overall Growth in Health Care Spending.

The evolving role of EDs in America's health care system must be viewed against the backdrop of a seemingly relentless rise in the rate of health care cost growth. For most of the past 60 years, U.S. health care spending outgrew gross domestic product (GDP) by an average of 2–2.3 percentage points per year (Fuchs, 2012). In 1990, the United States spent 12 percent of GDP, roughly \$724 billion, on health care. In 2010, health care devoured 17.9 percent of GDP, \$2.6 trillion (Center for Medicare and Medicaid Services, 2012). Spending growth has slowed since 2009 (Davis, 2011), but experts debate whether this reflects changes in health care delivery or a sluggish recovery from the recession that began the previous year.

Health care has grown so expensive that it is threatening the viability of employer-sponsored health insurance (Kaiser Family Foundation, 2012) and the solvency of the Medicare program. (Ginsburg, 2008). States have less money for education and other important priorities (Pew Center on the States, 2012). Between 1999 and 2009, health care cost growth wiped out the income gains of middle class families (Auerbach & Kellermann, 2011).

Spending growth is the top concern of policymakers; however, despite the fact that hospital ED use has increased, the ED contribution to spending growth is small. ED care is widely characterized as the most expensive care there is, but the real issue for EDs—one misunderstood by policymakers—is not the cost of non-urgent use. Rather, it is the growing role that EDs play as gateways to inpatient treatment, which accounts for 31 percent of health care spending.

Growing Use of Hospital EDs

Between 2001 and 2008, use of hospital EDs grew at roughly twice the rate of population growth (Kharbanda et al., 2013). During the same period, hospitals closed about 198,000 beds. With more patients seeking care and fewer inpatient beds available for those who need one, EDs grew crowded with admitted patients who could not be transitioned to inpatient care. (Kellermann, 2006).

Practice intensity has also increased in EDs, in part because EDs are treating older and sicker patients, and in part because emergency physicians are bringing more sophisticated and costly technology, such as more aggressive use of computerized tomographic (CT) scanning and other diagnostic tests, to bear in managing their patients' problems. In 2012, Pitts and colleagues noted that "EDs have become a central staging area for acutely ill patients, for the use of diagnostic technology, and for decisions about hospital admission, all of which makes ED care increasingly complex" (Pitts, Pines, Handrigan, & Kellermann, 2012). The combined effects of steady growth of ED visits, more-intensive workups, and fewer inpatient beds have extended ED lengths of stay, dramatically increasing the number of patients in hospital EDs at any hour of the day (Pitts et al., 2012). The crowding that results compromises patient safety and can worsen patient outcomes (Bernstein et al., 2009).

The increase in practice intensity also generated higher charges. Although emergency medicine's contribution to aggregate physician charges in the United States is relatively small, a team of Harvard analysts determined that emergency medicine has boosted its Medicare charges relative to its 2002 baseline faster than almost every other specialty, ranking second only to radiation oncology (Alhassani, Chandra, & Chernew, 2012).

Basic issues of access are key determinants of ED use. EDs are the only place in the U.S. health care system where the poor cannot be turned away. As a result, they are disproportionately used by low-income and uninsured patients who cannot reliably get care in other settings. In fact, the 4 percent of doctors who staff America's EDs manage 28 percent of all acute care visits in the United States, half of all the acute care provided to Medicaid and Children's Health Insurance Program (CHIP) beneficiaries, and two-thirds of the acute care provided to the uninsured (Pitts, Carrier, Rich, & Kellermann, 2010).

The Rising Cost of ED Care

ED charges for treatment of adults have grown dramatically. Between 2001 and 2010, physician claims for higher-paid services, particularly level 5 visits (the highest level of severity

in Medicare coding), grew from 27 percent to 48 percent of Medicare discharges (Office of Inspector General, 2012).

Politicians are fond of asserting that “emergency department care is the most expensive care there is.” The numbers suggest otherwise. EDs provide 11 percent of all outpatient visits and are the portal of entry for roughly half of all hospital admissions (Pitts et al., 2010); however, they account for only 2–4 percent of total annual health care expenditures (American College of Emergency Physicians, 2012). Recently, the McKinsey Global Institute estimated that aggregate national spending on outpatient health care totaled about \$850 billion in 2006 (McKinsey Global Institute, 2008). Of that, less than 10 percent (\$75 billion) could be attributed to EDs, suggesting that aggregate spending for ED care is in line with its share of outpatient care delivery.

Studies of ED charges versus reimbursement have generated mixed results. Rates of reimbursement for pediatric ED visits decreased significantly from 1996 to 2003 (Hsia, MacIsaac, & Baker, 2008). Among adult patients, charges and associated payments for ED care have increased, due at least in part to the steady growth of ED visits (Pitts, Niska, Xu, & Burt, 2008).

Both inefficiencies in the health care system and legal requirements contribute to ED costs. Providers often feel obliged to repeat tests because they cannot get access to the patient’s medical record. High levels of uncompensated care also figure prominently in ED costs. Because EDs are required under federal law to evaluate and stabilize all who present to the ED without regard for ability to pay, they serve as the “safety net of the safety net” for uninsured patients and Medicaid beneficiaries (Schuur & Venkatesh, 2012; Tang, Stein, Hsia, Maselli, & Gonzales, 2010). Nationwide, about 55 percent of emergency services are uncompensated (American College of Emergency Physicians, 2012).

Efforts to Discourage Non-Urgent Use of EDs

Cognizant of the high charges associated with ED visits, health plans and government are taking increasingly aggressive action to discourage non-urgent ED visits (Baker, 1994; Washington, Stevens, Shekelle, Henneman, & Brook, 2002). Arguing that such visits can be readily managed in less costly settings, policymakers and third-party payers have considered a variety of strategies to steer patients away from EDs and to deny payment for non-urgent ED visits (Cutler, 2010). Shifting ED patients to less expensive outpatient or office-based care is appealing in concept, but difficult to accomplish in practice (Florence, 2005). There is no standard definition of non-urgent care. In addition, it is notoriously difficult to determine at ER triage which patients are really sick and which are not (A. L. W. Kellermann, R. M., 2012). Raven and colleagues, analyzing data from the National Hospital Ambulatory Medical Care Survey-ED subsample, determined that many patients with the same presenting complaint as those who were felt to be inappropriate ED visitors were found to require immediate emergency care or hospital admission (Raven, Lowe, Maselli, & Hsia, 2013).

Timeliness also plays a role in ED use. Research teams that have asked patients why they sought treatment in EDs for non-urgent conditions found that the primary motivator is lack of options, not lack of judgment (J. Billings, Parikh, & Mijanovich, 2000; J. Billings, Parikh, N., Mijanovich, T., 2000; Delia & Cantor, 2009; Goodell, 2009; A. L. W. Kellermann, R. M., 2012; Taylor, 2006; Young, Wagner, Kellermann, Ellis, & Bouley, 1996)). Indeed, a major driver of ED use is lack of access to primary care. When Americans develop an acute health problem, they see their primary care provider less than half the time, especially when the symptoms involve a potentially serious problem, such as chest or abdominal pain, headache, shortness of breath, or other potentially serious problems (Pitts et al., 2010). A survey by the Centers for Disease Control and Prevention (CDC) conducted in 2011 showed that about 80 percent of adults who visited an ED did so because they lacked access to other providers. Nearly half reported “the doctor’s office was not open” as the reason for their most recent ED visit (CDC, 2012).

EDs as Entry Points to Inpatient Care

Little thought has been given to the growing role that EDs play as gateways to inpatient treatment, which accounts for one-third of health care spending. Between 1993 and 2006, hospital admissions from the ED grew by 50 percent (from 11.5 million to 17.3 million). As a result, the share of inpatient stays that originated in the ED increased from 34 percent to 44 percent (Schuur & Venkatesh, 2012).

Although EDs are essential to hospital operations, many administrators consider their ED a “loss leader” (Hsia, Kellermann, & Shen, 2011; Simonet, 2009). This perception is due, in part, to the financial burden of uncompensated care that EDs are legally required to provide, and in part to accounting practices that attribute inpatient revenues to the admitting service, rather than the department where the admission originated (Institute of Medicine, 2007).

Recently, Smulowitz, Honigman and Landon (Smulowitz, Honigman, & Landon, 2013) proposed a novel framework that classifies ED visits into broad categories of severity and seeks to focus the attention of policymakers and health system managers on ED visits that present the most potential for improving outcomes while simultaneously reducing costs. The approach they devised suggests that the current focus on diverting low-acuity visits to less-costly sites of ambulatory care would not produce savings of the magnitude that could be achieved if EDs and their associated health systems focused on reducing preventable hospital admissions and, to a lesser extent, improving ED care of patients with what the authors term “intermediate or complex conditions.” After outlining this framework, the authors proposed a variety of ways in which EDs might become more fully integrated into a health care delivery system that puts patients first.

The project described in this report was nearly finished when Smulowitz et al. published their paper; however, in many ways our study results have provided empirical support of their work.

Aims of the RAND Study

In a series of three reports published in 2006, the Institute of Medicine (IOM) examined the strengths, limitations, and future challenges of emergency care in the U.S. health system (Institute of Medicine, 2007). The IOM noted that tremendous progress has been made in the science of emergency medicine, the capabilities of emergency care providers, the development of emergency medical services (EMS), and the regionalization of trauma care. It also noted that hospital-based emergency care has grown so overburdened, it has reached “the breaking point” (Institute of Medicine, 2007).

With the exception of the IOM, few independent groups have examined the various roles that EDs play, the challenges they face, and the contributions they make to the functioning of our nation’s health care system. This information gap makes it difficult to understand how EDs should be integrated into community-based care.

The overarching goal of our work was to help fill this information gap. Our study had five specific aims:

1. *Quantify and contrast the number and percentage of hospital admission decisions made by ED physicians compared with those of primary care physicians (PCPs) and other office-based specialists.* We hypothesized that the percentage of admissions entering the hospital through the ED has grown relative to the number of patients directly admitted from their physician’s office.
2. *Quantify the proportion of non-elective admissions that enter hospitals through the ED versus direct admissions from physicians’ offices and other primary care settings.* We hypothesized that the proportion of hospital admissions that is non-elective has increased and that this increase is being driven by admissions entering via the ED.¹
3. *Determine the frequency and reasons why office-based physicians refer patients to the ED for evaluation and, if required, hospitalization, rather than directly admitting the patient themselves.* We hypothesized that office-based physicians are increasingly using the ED for evaluating and admitting non-elective patients.
4. *Determine ED admission rates by type of health care insurance for various sub-populations of interest.* We hypothesized that the number and rate of ED admissions (as a percentage of total ED visits by payer group) is growing more quickly among Medicare beneficiaries and privately insured patients than among Medicaid beneficiaries and the uninsured. Furthermore, we hypothesized that patients enrolled in a health plan that offers care coordination are less likely to be hospitalized than otherwise comparable patients who are covered by a fee-for-service (FFS) plan.
5. *Determine if EDs are playing a role in reducing preventable hospital admissions and readmissions of patients with ambulatory care sensitive (ACS) conditions (e.g., asthma,*

¹ Non-elective admissions are urgent/emergent hospitalizations dictated by the patient’s medical condition and their treating physician’s determination that hospitalization is required to address the problem. Generally speaking, they cannot be postponed. Elective admissions are chosen by the patient or their physician for reasons that are perceived to be beneficial to the patient, but are not urgent.

diabetes, heart failure, other chronic health conditions). We hypothesized that although ED use by patients with ACS conditions is growing, the number of hospitalizations involving these same clinical conditions is either flat or rising at a slower rate. If true, this may indicate that EDs are playing a constructive role in reducing preventable hospital admissions.

Organization of This Report

The discussion that follows is organized as follows. We describe our conceptual model of ED use (Chapter Two), methods (Chapter Three), findings (Chapter Four), and their implications (Chapter Five). We conclude by drawing conclusions for policy and practice (Chapter Six).